

THE STATUS OF NANOTECHNOLOGY AS AN EMERGING TECHNOLOGY IN FOOD SCIENCE AND TECHNOLOGY

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Nanotechnology has been defined as relating to materials, systems and processes which operate at a scale of 0.1 to 100 nanometers. This technology is the new frontier of this century. Thus, its importance in agriculture and food industry has been increasing. The demands for food of natural quality, more safety, minimally processed and longer shelf-life have turned out to be matters of high importance. Application of nanotechnology in food sector has mainly focused on food packaging, nano-composite materials and nano-sensors. Most of researches and developments are made in polymeric materials and new formulation strategies to develop composites that have potential applications in food packaging. Advanced food packaging materials are expected to be cheap, renewable and sustainable materials with enhanced barrier and mechanical properties. Bio-nanocomposite materials as another research and development area in application of nanotechnology for food applications such as packaging and other food contact surfaces are expected to grow in subsequent years with the advancement of new polymeric materials and composites composed of inorganic nano-particles. One of the earliest applications of nanotechnology in food was the development of sensors for detecting a specific molecule that is associated with the condition of a food product such as gasses, small organic molecules, and food-borne pathogens. These nano-sensors are capable of detecting these materials in minute levels. Nanotechnology is becoming practical regime from experimental studies. In this study, applications of nanotechnology and its status in food technology and industry are reviewed.

Keywords: Food Nanotechnology, nano-sensor, food packaging

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